



Web services Integration Middleware – Interoperability in Healthcare

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Foreword

This presentation won the first prize of £ 250 at the Health Care Informatics (HCI) Symposium Poster Competition in Royal College of Surgeons of Edinburgh (RCSED) on 28th June 2005.

Introduction

Web services are XML applications providing basic services like booking a GP appointment; they can also used as interoperable building blocks to create more complex systems.

With Web services, a network can be built site-by-site, like the World Wide Web (W3). Just like the HTTP-Web is standardized on HTML, Web services can be standardized onto the XML world.

Adoption of Web services can trigger a W3-style information revolution within healthcare. Web services can be used to prepare for the patient-centered healthcare wave.

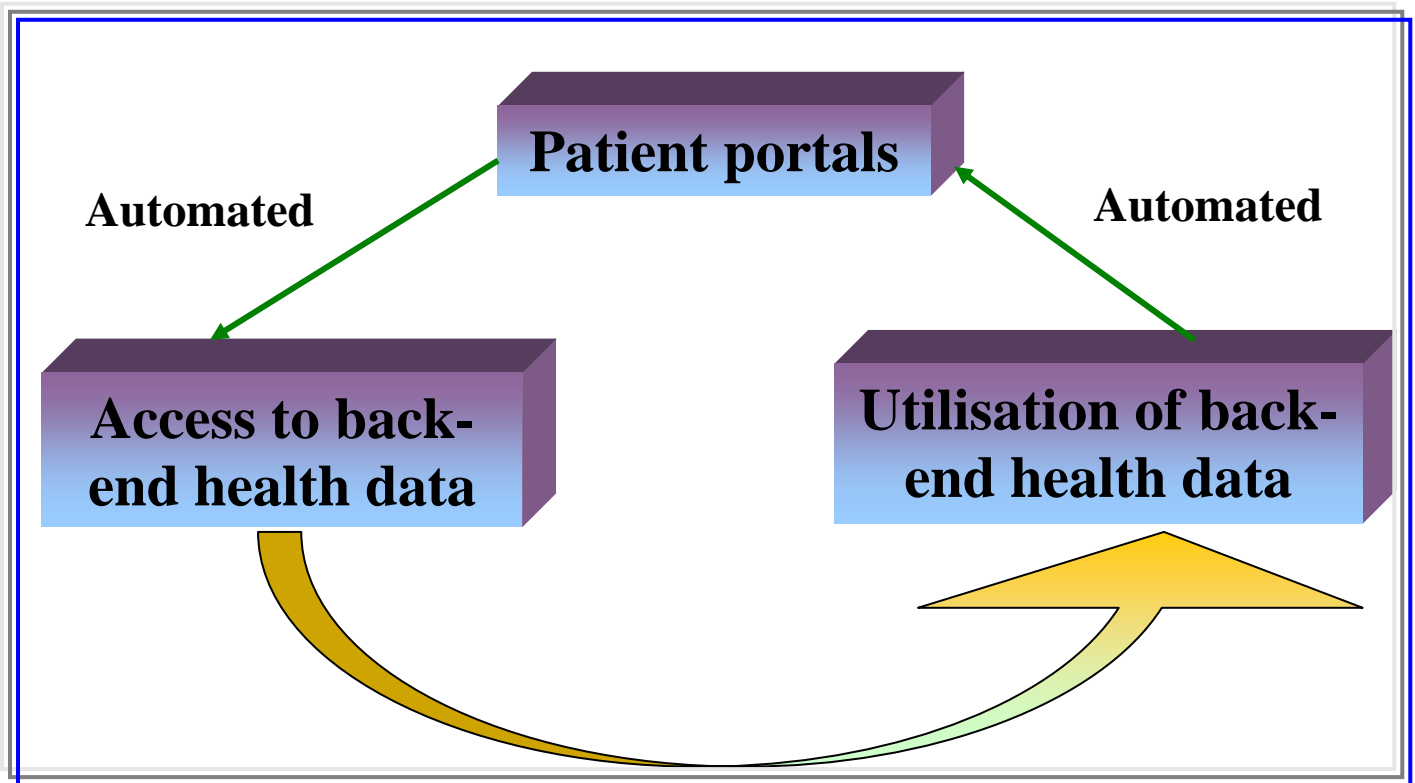
Ultimately Web services can be scaled up to solve the interoperability conundrum that are hindering plans for an interoperable national healthcare IT network

Aims

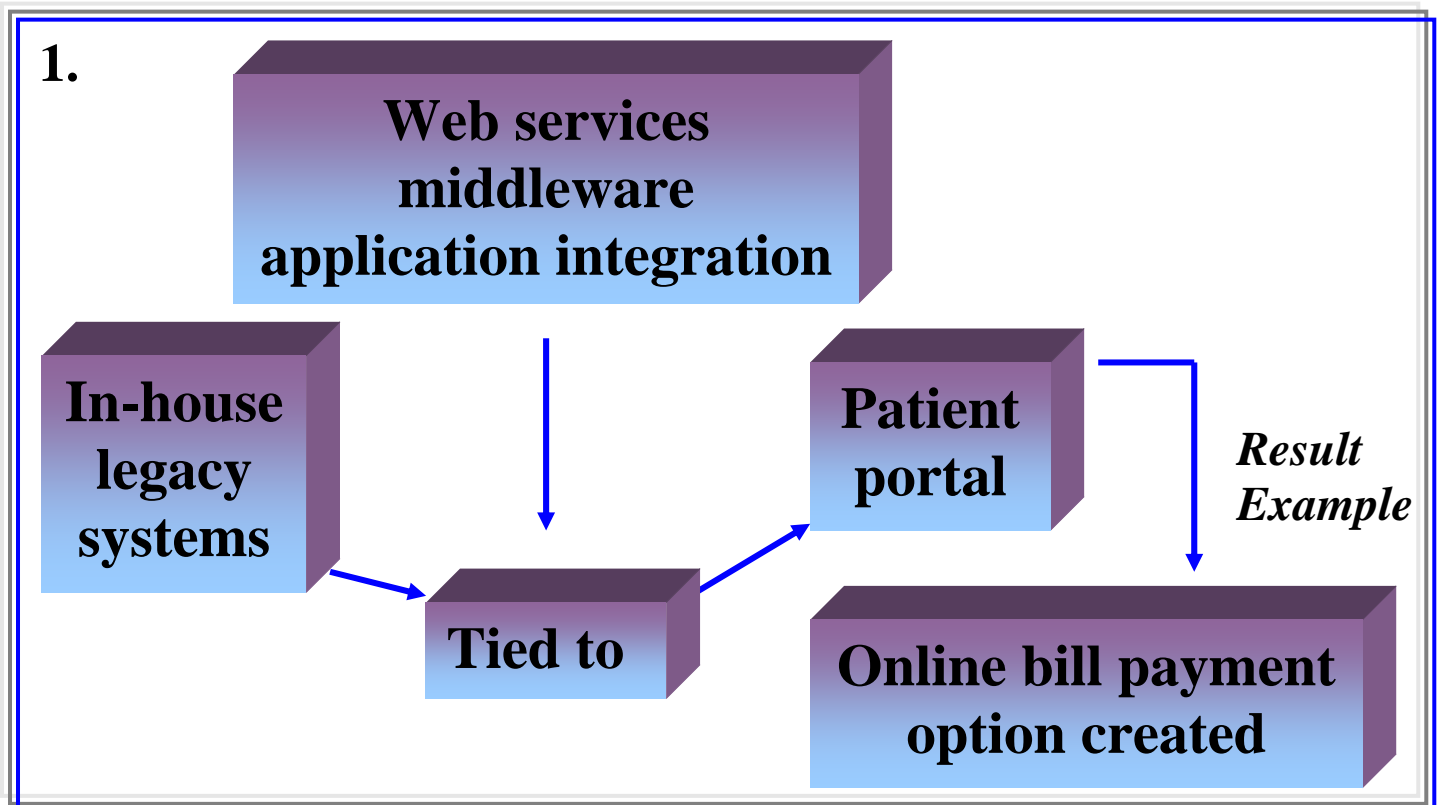
1. Demonstrate interoperability in healthcare through Web services middleware, with examples
2. Explore how future worldwide interoperability may be achieved through Semantic Web Web services

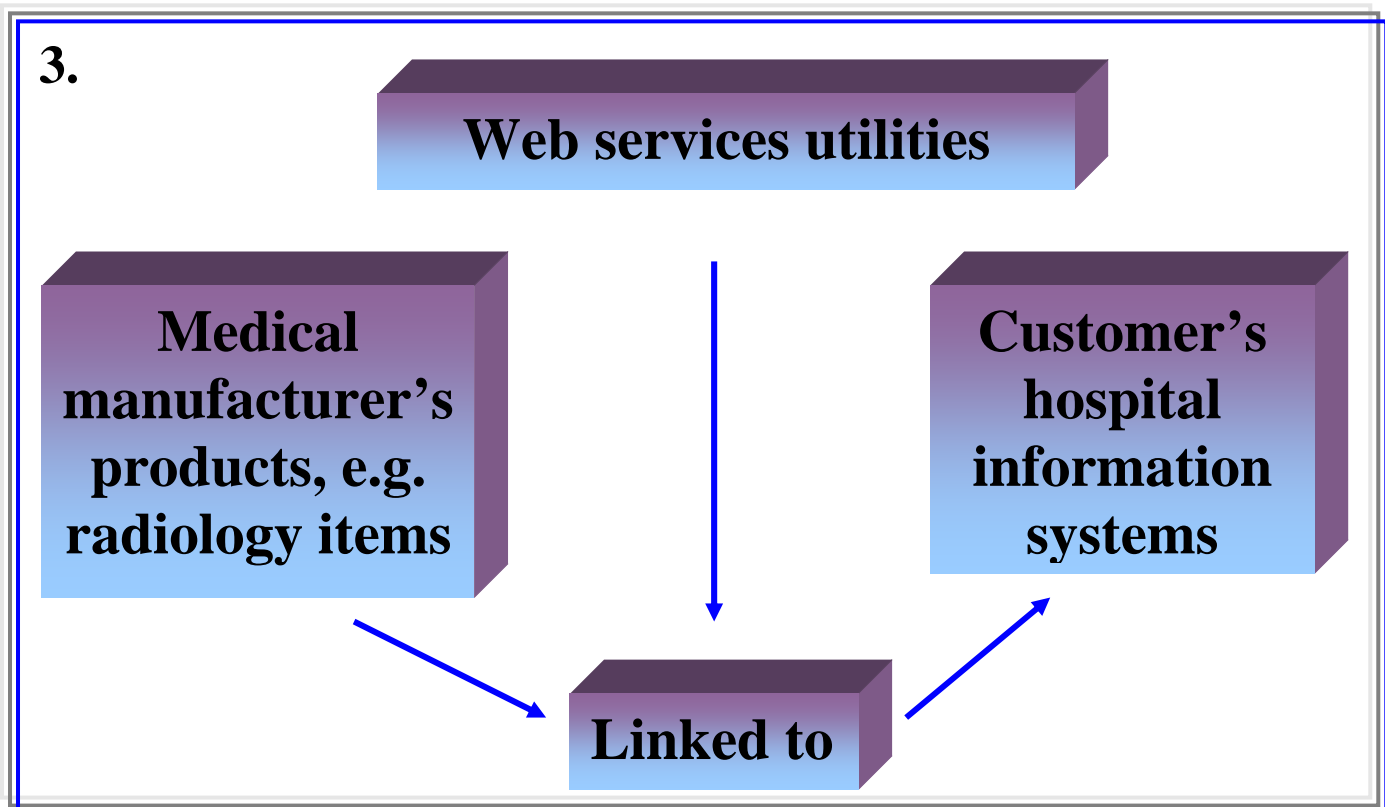
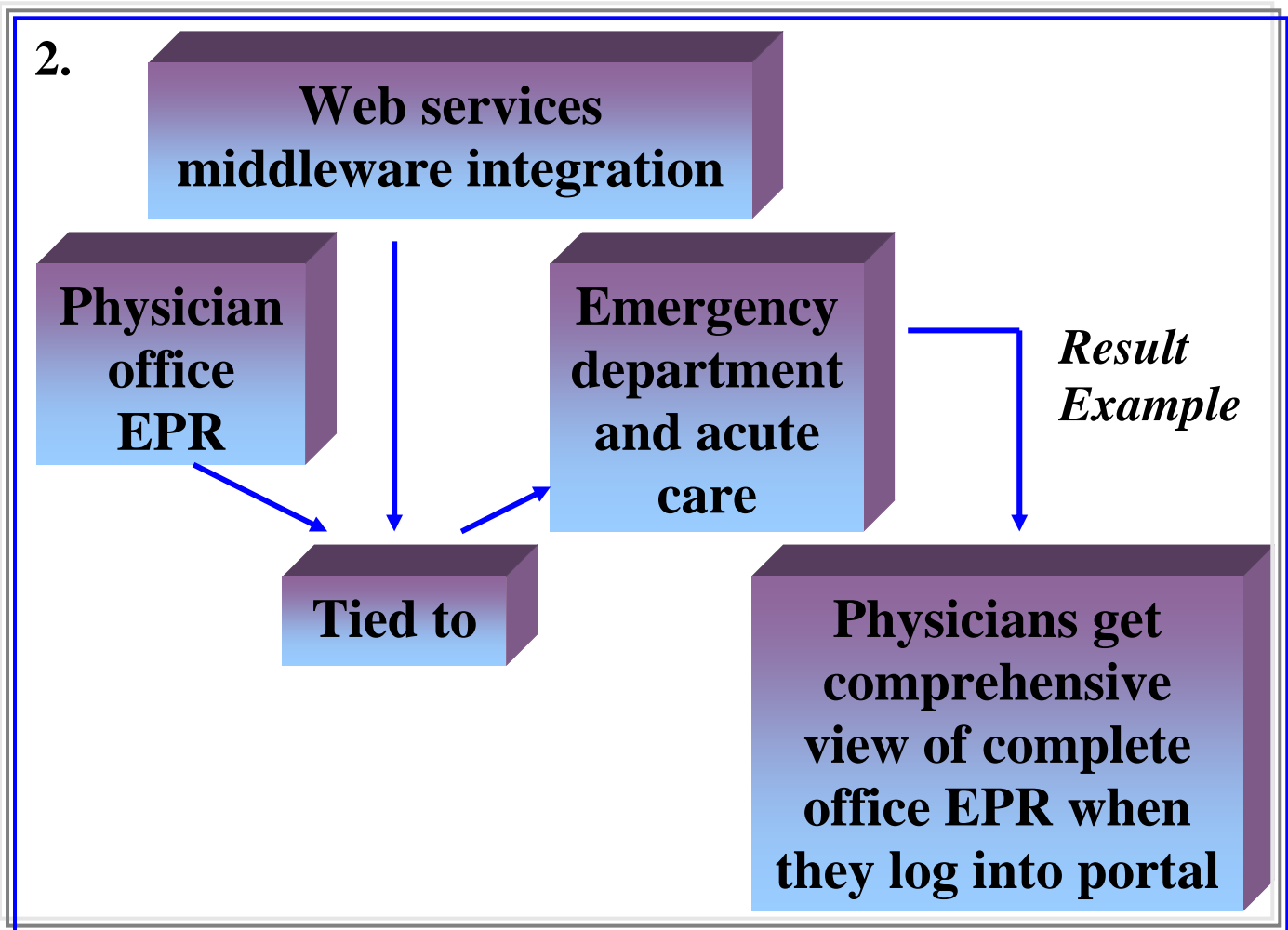
Descriptions

Most common Web services approach within healthcare is:

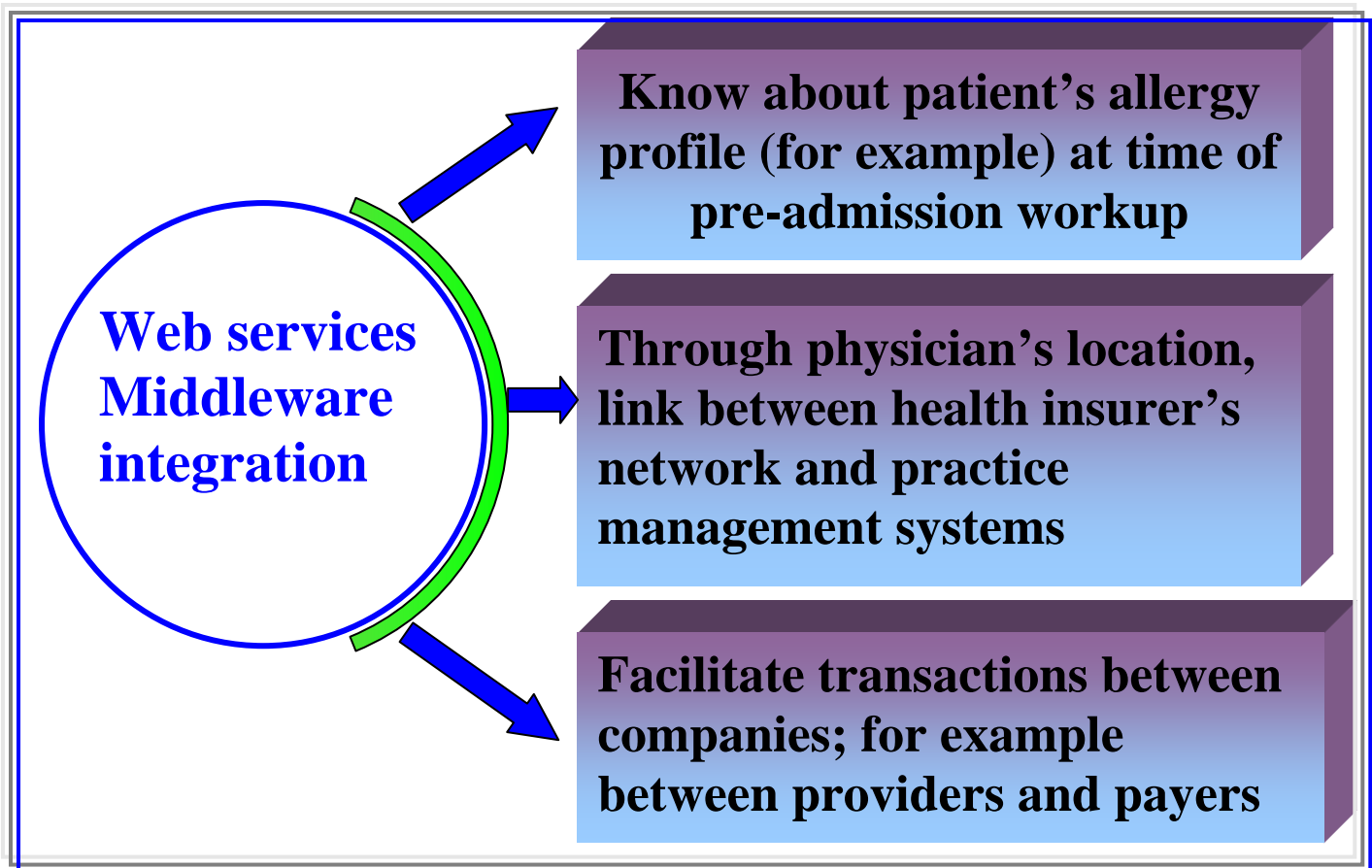


Thus, a few examples





Other utilities of Web services middleware in healthcare:



Discussion

Microsoft-NHS

The Microsoft-NHS team supports NHS organisations in UK. Health services organizations in UK are under pressure to adopt integrated technology, not only as a challenge posed by the NPfIT, but because it is being recognized as an important tool:

- To improve the efficiency and effectiveness of services
- Help NHS trusts streamline processes
- Improve access to information for both patients and staff, and
- Keep within tight budgets

XML and Interoperability

Microsoft is advancing a new generation of interoperable software. These are centered on XML and have resulted in implementing next-generation architecture for Web services (WS-* in .NET).



The UK example

Wrightington, Wigan and Leigh NHS Trust has initiated steps towards realisation of ‘a-single-view-of-patients’ EPR, for better patient care, by implementing a Web-based system.

Conclusion – The Future of the World

Semantic Web Web services



[From ref. 5]

The Semantic Web, which will understand human language, is expected to replace the current Web by **2010**.

The Semantic Web Services Initiative (**SWSI**) was composed in 2004. It combined Semantic Web and Web services to enable automation in all aspects of Web services.

Few commercial products have successfully implemented a semantic shell over a robust Web services kernel. Functional / behavioral descriptions of Web services / processes need exploration.

Worldwide Social and Information Network of Excellence for Semantic Web and Information Systems

[From ref. 5]

Semantic Web enabled Web Services (SWWS)

SWWS is a European 5th Framework project aimed at utilizing Semantic Web technology to enable open, flexible approach to web services. Its goals are:

- 1. Provide a comprehensive web services description framework**
- 2. Define a web service discovery framework**
- 3. Provide a scalable web service mediation platform**

Reference:

- <http://www.e-courses.rcsed.ac.uk/mschi/unit5/KamelBoulos-XML-Jun03.ppt>
- <http://www.microsoft.com/uk/government/health/default.aspx>
- <http://www.microsoft.com/windowsserversystem/interop/default.aspx>
- http://www.healthcare-informatics.com/issues/2005/05_05/trends.htm
- <http://www.aisnet.org/sigs.shtml>